

Do epilepsy medications taken during pregnancy affect a child's creativity?

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While older drugs for epilepsy, taken while pregnant, have been shown in previous research to affect the creative thinking of children, a new study finds no effects on creativity for children born to those taking newer epilepsy drugs. This study is published in *Neurology*.

Overall, the study found no effects on the children's creative abilities or their executive function, which is a person's ability to plan, focus, and manage multiple tasks. However, when researchers looked only at children with higher concentrations of these medications in the mother's blood during the third trimester, the study found an association with poorer performance in tests of children's executive function, but no effect on their creative abilities.

"Our findings highlight that even for epilepsy medications that are generally considered to be safe in pregnancy, dose adjustments should be made with a goal of reaching an optimal balance between controlling seizures and the minimizing negative effects on the developing child," said study author Kimford Meador, MD, Ph.D., of Stanford University in Palo Alto, California and a Fellow of the American Academy of Neurology.

The study involved 251 children of female participants with epilepsy and 73 children of female participants without the disease. Of those with epilepsy, most were taking just one epilepsy [medication](#). Of this group, 81 people were on lamotrigine and 68 people were on levetiracetam.

The children were evaluated at age 4.5 with a test of creative thinking where they were provided with a shape or figure and responded by completing or adding their own illustrations. This [test](#) assesses fluency, flexibility and originality abilities.

After adjusting for mothers' IQ and education, researchers found no differences in the creativity scores between the children born to mothers with epilepsy and those born to mothers without the disease.

In addition, the team found no differences in creativity among the children of mothers with epilepsy that could be linked to different levels of antiseizure medications found in mothers' blood samples during the

third trimester.

However, researchers found that higher [third-trimester](#) blood concentrations of these medications were associated with poorer performance on tests of executive skills. This link was mainly associated with exposure to levetiracetam.

"There is still so much to learn about the impact of a mother's [epilepsy](#) medications on their child's creative development," said Meador. "More studies are needed, especially in [older children](#), to assess the full effect of these medications on childhood development."

A limitation of the study was that cognitive tests at age 4.5 are not as accurate at predicting [creativity](#) and thinking skills in the teenage and adult years as tests taken at older ages.

More information: Kimford J. Meador et al, Association of Prenatal Exposure to Antiseizure Medications With Creative and Executive Function at Age 4.5 Years, *Neurology* (2024). DOI: 10.1212/WNL.0000000000209448 , [dx.doi.org/10.1212/WNL.0000000000209448](https://doi.org/10.1212/WNL.0000000000209448)

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